

between the sulphate of copper bath and the lens of the camera, but the blue screen thus formed seemed to have very little effect in altering the breadth of the irradiation-fringe, only slightly retarding the rate of its formation; a similar result was obtained on placing a piece of yellow glass in front of the diaphragm; in this case, however, the formation of the fringe was still further retarded.

Photographers have long known that by making use of stops they can obtain a much sharper image. By way of experiment, we cut off the edges of the lens with a circular stop, and found that the inner irradiation fringe was thus greatly decreased. It seems, therefore, fair to argue that the aberration of oblique pencils exceeds in magnitude the other disturbing causes, and that it will be well, in making preparations for the photographic observation of the Transit of *Venus*, to avoid as much as possible all oblique pencils.

We would, therefore, place our photographic plates in the primary focus, and thus avoid the necessarily deep curves of any arrangement of lenses which may be used for enlarging the image. Whether it would be best to make use of a reflector or a refractor, remains to be settled by further experiment, but our present experiences would lead us to vote in favour of the reflector.

We cannot conclude without returning our best thanks to Mr. H. Davis, who has rendered us the most willing assistance in carrying out all of the foregoing experiments.

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*The Aurora of February 4th, 1872.* By the Rev. J. Slatter.

A desire having been expressed by Mr. Finlayson in the April Number of the *Monthly Notices* for any observation of this aurora, I forward to you the entry I made of it.

Feb. 4, 7<sup>h</sup> 20<sup>m</sup>. A fine aurora with much rosy light, but hidden by low fleecy clouds, with a slight drizzling rain. At the time indicated, there was a break in the clouds which showed the dome-formation, and suggested a corona either formed and passed, or about to form, exactly over *Aldebaran*, by about 5°, which was then in azimuth almost on the magnetic meridian.

My place of observation is in N. lat. 51° 30' 15"; long. W. 1° 1' 15".

On Oct. 24, 1870, I obtained a simultaneous observation of the corona with Greenwich, viz. at 8<sup>h</sup> 20<sup>m</sup>, G.M.T. At this station it exactly covered  $\gamma$  *Pegasi*; at Greenwich it covered a spot midway between  $\beta$  and  $\gamma$  *Pegasi*, which may be assumed to have been R.A. 22<sup>h</sup> 47<sup>m</sup> 13<sup>s</sup>, N.P.D. 61° 32'.

From these data it would appear that the height of the corona was nearly 118 miles in the zenith of a spot in the Channel about thirty miles north of Havre. But this depends entirely on the assumption that it was the same phenomenon (*i.e.* identical and not only apparent) which was observed at both places. The

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only other observation I ever made, in which I was satisfied by ocular demonstration of the identity of the phenomenon, was the height of an auroral arch with a base of nineteen miles which gave a height of only 15,000 feet. With regard to the intensity of the light on the occasion just referred to, viz. Oct. 24, 1870, it may be worth recording that, great as was the amount of light pervading the atmosphere, no portion of it, not even the corona, was capable of being seen by reflexion in the centre of the river.

*Streatley Vicarage, June 4th, 1872.*

### *Observations of the Solar Prominences, from Jan. 1 to April 29.*

By Father Secchi, Director of the Roman Observatory.

Father Secchi communicates to the Paris Academy his observations of the prominences during the four solar rotations ending April 29, thus completing, with the observations already recorded (see *Monthly Notices* for March), an entire year of observations. In this period there were fifty-nine days of complete observations.

During this interval, the law was confirmed, which gave a maximum of prominences in the region of spots, and a minimum of the equator. But the relative maximum in the polar zones was scarcely sensible.

"The general absence of polar prominences," proceeds Secchi, "during the interval was remarkable." They were replaced by sensible elevations of the chromatosphere. Counting only as prominences those whose height reached or surpassed forty seconds, prominences were found to be very rare.

"The aspect of the granulations, and of the brighter bands around the polar zones, corresponded with this absence of polar prominences; as the former could scarcely be recognised, while last year they were very visible.

"The intensity and number of the faculæ are also diminished.

"Dividing the prominences into three classes, according to their direction with respect to the poles, the following numbers are obtained:—

Indifferent .. .. .	..	398
Directed towards the poles..	..	342
Directed towards the equator	..	67

Total 807

"In the observations, especially the later ones, great attention has been paid to the direction of the threads or hairs of the chromatosphere, and the results obtained have been the following:—

"In general, in mean latitudes, the threads are also directed towards the poles, but there are numerous exceptions, especially in the neighbourhood of prominences, spots, and granulations. At the equator and poles, there are no constant rules.